What is claimed is:

1. A method for forming bottle-shaped trenches, suitable for use in a dynamic random access memory (DRAM), comprising:

providing a substrate;

forming a hard mask having openings on the substrate;

etching the substrate through the openings to form trenches with a upper portion and a lower portion;

conformally forming a isolated layer in the trenches and on the hard mask;

forming a shield layer in the lower portion of the trenches;

removing parts of the isolated layer which is not covered by the shield layer to expose the surface of the upper portion of the trenches;

forming a protective layer on the sidewall of the upper portion of the trenches;

removing the shield layer to expose the isolated layer in the lower portion of the trenches;

removing the isolated layer to expose the substrate of the lower portion of the trenches; and

etching the substrate of the lower portion of the trenches using the protective layer as a mask to form bottle-shaped trenches.

2. The method as claimed in claim 1, wherein the substrate comprises silicon.

3. The method as claimed in claim 2, wherein the hard mask comprises a nitride.

4. The method as claimed in claim 1, wherein the trenches are etched by an anisotropic etching.

5. The method as claimed in claim 1, wherein the isolated layer comprises an oxide.

6. The method as claimed in claim 5, wherein the isolated layer is formed by chemical vapor deposition (CVD).

7. The method as claimed in claim 1, wherein the protective layer further comprises dopants.

8. The method as claimed in claim 7, wherein after forming the protective layer further comprises driving the dopants into the substrate surrounding the protective layer by thermal treatment.

9. The method as claimed in claim 1, wherein the shield layer comprises polysilicon.

10. The method as claimed in claim 8, wherein the step of forming a shield layer in the lower portion of the trenches comprises:

forming the shield layer to fill the trenches;

removing parts of the shield layer in the upper portion of the trenches to leave parts of the shield layer in the lower portion of the trenches.

11. The method as claimed in claim 1, wherein the shield layer is formed by chemical vapor deposition (CVD).

12. The method as claimed in claim 1, wherein the protective layer comprises a nitride.

13. The method as claimed in claim 12, wherein the protective layer is formed by chemical vapor deposition (CVD).

14. A method for forming bottle-shaped trenches, suitable for use in a dynamic random access memory (DRAM), comprising:

providing a substrate;

forming a hard mask having openings on the substrate;

etching the substrate through the openings to form trenches with a upper portion and a lower portion;

conformally forming a isolated layer in the trenches and on the hard mask;

forming a shield layer in the lower portion of the trenches;

removing parts of the isolated layer which is not covered by the shield layer to expose the surface of the upper portion of the trenches;

conformally forming a protective layer on the sidewall and the bottom of the trenches;

removing parts of the protective layer on the bottom of the trenches to leave parts of the

protective layer on the sidewall of the trenches;

removing the shield layer to expose the isolated layer in the lower portion of the trenches;

removing the isolated layer to expose the substrate of the lower portion of the trenches; and

etching the substrate of the lower portion of the trenches using the protective layer as a mask so as to form bottle-shaped trenches.

15. The method as claimed in claim 14, wherein the substrate comprises silicon.

16. The method as claimed in claim 14, wherein the hard mask comprises a nitride.

17. The method as claimed in claim 14, wherein the trenches are etched by an anisotropic etching.

18. The method as claimed in claim 14, wherein the isolated layer comprises an oxide.

19. The method as claimed in claim 18, wherein the isolated layer is formed by chemical vapor deposition (CVD).

20. The method as claimed in claim 14, wherein the protective layer further comprises dopants.

21. The method as claimed in claim 20, wherein after formation of the protective layer, dopants are driven into the substrate surrounding the protective layer by thermal treatment.

22. The method as claimed in claim 14, wherein the shield layer comprises polysilicon.

23. The method as claimed in claim 14, wherein the step of forming a shield layer in the lower portion of the trenches comprises:

forming the shield layer to fill the trenches;

removing parts of the shield layer in the upper portion of the trenches to leave parts of the shield layer in the lower portion of the trenches.

24. The method as claimed in claim 14, wherein the shield layer is formed by chemical vapor deposition (CVD).

25. The method as claimed in claim 14, wherein the protective layer comprises a nitride.

26. The method as claimed in claim 25, wherein the protective layer is formed by chemical vapor deposition (CVD).